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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,356	09/25/2003	Tomoya Kodama	243098US2SRD	6638

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ALEXANDRIA, VA 22314

EXAMINER

LE, VU

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,356

Applicant(s)

KODAMA ET AL.

Examiner

Vu Le

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 and 11-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37,38,40 and 41 is/are allowed.
- 6) ☒ Claim(s) 1-4,9,10,36 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-4, 9-10, 36-41 in the reply filed on March 30, 2005 is acknowledged. The traversal is on the ground(s) that electronic searching may cover a large number or theoretically "all" subclasses to be searched without substantial additional effort. This is not found persuasive because the argument is purely speculative. Furthermore, MPEP § 803 does not confine "serious burden" to just searching alone. There are many aspects to patent examination, searching is one of those aspects. When an application contains multiple distinct species, evaluating individual merit of each species typically results in burdensome searches and consideration.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 5-8, 11-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 30, 2005.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, *except* that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

4. Claims 1-4, 9-10, 36, 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Jozawa et al, US 6,785,331.

Re claim 1, Jozawa discloses a video encoding apparatus to encode a video (figs. 1, 3), comprising:

an input picture module configured to receive an input picture (1, 14, see also fig. 8);

a memory to store a reference picture (2);

a motion vector detection module configured to detect a motion vector of the input picture in units of a macroblock by block matching referring to the reference picture (4,6,8,10);

and a predictive encoding module (12-24) configured to perform forward predictive encoding (col. 5, List 2: I and P coding) and bidirectional predictive encoding (col. 5, List 2: B coding in units of a macroblock (col. 6, List 3) using the motion vector

and the reference picture, to generate a forward predictive encoded picture and at least one bidirectional predictive encoded picture which is inputted between the forward predictive encoded picture and the reference picture (col. 2, line 56 – col. 3, line 6), the predictive encoding module skipping a macroblock of the forward predictive encoded picture in a variable length encoding when a correlation between the macroblock of the forward predictive encoded picture and macroblocks of the bi-directional predictive encoded picture and the reference picture which are located at the same position as that of the forward predictive encoded picture is high (col. 5, line 52-65, col. 11, line 14-35. Note: the skip macroblock is an INTER macroblock, that is it can be either forward predictive or bi-directional predictive macroblock. In Jozawa, high correlation between the INTER predictive macroblock and the reference macroblock during prediction will consequently yield “zero” motion vector).

Re claim 2, the video encoding apparatus according to claim 1, which includes an orthogonal transformation module configured to subject each macroblock to orthogonal transformation (16) and quantization to generate quantized orthogonal transformed coefficients (18), and wherein the predictive encoding module skips macroblocks of the forward predictive encoded picture that satisfy following conditions:

(a) forward motion vectors of the macroblocks of all bidirectional predictive encoded pictures using the reference picture which is the same as that used for the forward predictive encoded picture are 0, and (b) matching residuals with respect to the macroblocks of all the bidirectional predictive encoded pictures that are at the same position are not more than a threshold (col. 5, line 52-65, col. 11, line 14-35).

Re claim 3, the video encoding apparatus according to claim 2, wherein the predictive encoding module performs a forward motion vector detection of each of the macroblocks of all bidirectional predictive encoded pictures subjected to the forward motion vector detection by using the reference picture, before a variable length encoding of the macroblock of the forward predictive encoded picture that is located at the same position as those of the bidirectional predictive encoded pictures. (See figs. 1 & 3, col. 5, line 52-65, col. 11, line 14-35. Note: In Jozawa, predictive encoding i.e. INTER prediction is performed for "co-located" macroblocks prior to variable length encoding).

Re claim 4, the video encoding apparatus according to claim 1, wherein the motion detection module carries out a forward motion vector detection of the macroblocks of all bidirectional predictive encoded pictures that are located at the same position as that of the reference picture before variable length encoding of the macroblock of the forward predictive encoded picture, and the encoding module includes a variable length encoder to subject each macroblock of each of the pictures to variable length encoding. (See figs. 1 & 3, col. 5, line 52-65, col. 11, line 14-35. Note: In Jozawa, during predictive encoding i.e. INTER prediction, motion vector detection is performed for "co-located" macroblocks prior to variable length encoding).

Claims 9-10 are method claims corresponding to apparatus claim 1. Hence, they have been analyzed and rejected w/r to claim 1 above. (Note: In Jozawa, the skip macroblock mode involves INTER macroblock, and this macroblock yields motion vector and DCT coefficients that are zero. In actuality, the DCT coefficients may yield

differences that are insignificant or below a predetermined threshold and are forced to zeros. This is inherent. Processing of the macroblock is pixel-based).

Claims 36 and 39 are rejected w/r to claim 1 above. They further specify encoding is confined to MPEG-4 and video information to be encoded is video object plane (VOP). Likewise, Jozawa discloses MPEG-4 encoding of VOPs. The specific information from an encoded result of a first VOP of the video is the "COD" flag. (See col. 5, line 14 – col. 6, line 60 and List 2). List 2 indicates I, B and P-VOP type during predictive encoding. In Jozawa, when COD=1, encoding of the P-VOP is skipped i.e. not coded.

Claim Objections

5. Claim 2 is objected to because of the following informalities:
 - a. Claim 2 needs to end in a period.

Appropriate correction is required.

Allowable Subject Matter

6. Claims 37-38 and 40-41 are allowed.
7. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to anticipate or render obvious the following limitations as claimed:

Re claims 37 and 40, specifically "...a control module configured to compare the number of encoded bits of the first VOP with the threshold, and control the encoder to encode a second VOP to be encoded next to the first VOP as one of an intraframe

encoded VOP, a forward predictive encoded VOP and a not_coded VOP when the number of encoded bits exceeds the threshold”.

Re claims 38 and 41, specifically, “...a presume module configured to presume occupancy of a VBV buffer that is a virtual buffer of a virtual decoder side by using the number of encoded bits; a control module configured to control the encoder to encode a second VOP to be encoded next to the first VOP as one of an intraframe encoded VOP, a forward predictive encoded VOP and a not_coded VOP, according to a change of the occupancy of the VBV buffer”.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

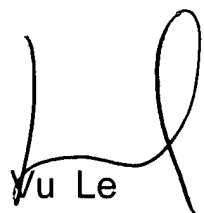
Contact

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Le whose telephone number is (571) 272-7332. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. Customer Service can be reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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